

This key should allow you to understand why you choose the option you did (beyond just getting a question right or wrong). More instructions on how to use this key can be found [here](#).

If you have a suggestion to make the keys better, please fill out the short survey [here](#).

Note: This key is auto-generated and may contain issues and/or errors. The keys are reviewed after each exam to ensure grading is done accurately. If there are issues (like duplicate options), they are noted in the offline gradebook. The keys are a work-in-progress to give students as many resources to improve as possible.

1. Find the inverse of the function below (if it exists). Then, evaluate the inverse at $x = 15$ and choose the interval that $f^{-1}(15)$ belongs to.

$$f(x) = \sqrt[3]{3x - 4}$$

The solution is 1126.3333333333333, which is option B.

- A. $f^{-1}(15) \in [-1128.5, -1124.2]$

This solution corresponds to distractor 2.

- B. $f^{-1}(15) \in [1124.3, 1128.9]$

* This is the correct solution.

- C. $f^{-1}(15) \in [-1124.2, -1120.8]$

This solution corresponds to distractor 3.

- D. $f^{-1}(15) \in [1121.9, 1125.8]$

Distractor 1: This corresponds to

- E. The function is not invertible for all Real numbers.

This solution corresponds to distractor 4.

General Comment: Be sure you check that the function is 1-1 before trying to find the inverse!

2. Find the inverse of the function below. Then, evaluate the inverse at $x = 7$ and choose the interval that $f^{-1}(7)$ belongs to.

$$f(x) = e^{x+5} - 3$$

The solution is $f^{-1}(7) = -2.697$, which is option C.

- A. $f^{-1}(7) \in [-2.55, -2.18]$

This solution corresponds to distractor 3.

- B. $f^{-1}(7) \in [-1.84, -0.93]$

This solution corresponds to distractor 2.

- C. $f^{-1}(7) \in [-3.14, -2.59]$

This is the solution.

- D. $f^{-1}(7) \in [6.87, 7.36]$

This solution corresponds to distractor 1.

- E. $f^{-1}(7) \in [-0.62, -0.27]$

This solution corresponds to distractor 4.

General Comment: Natural log and exponential functions always have an inverse. Once you switch the x and y , use the conversion $e^y = x \leftrightarrow y = \ln(x)$.

3. Find the inverse of the function below. Then, evaluate the inverse at $x = 7$ and choose the interval that $f^{-1}(7)$ belongs to.

$$f(x) = e^{x-5} + 3$$

The solution is $f^{-1}(7) = 6.386$, which is option C.

A. $f^{-1}(7) \in [5.43, 5.54]$

This solution corresponds to distractor 3.

B. $f^{-1}(7) \in [5.12, 5.31]$

This solution corresponds to distractor 2.

C. $f^{-1}(7) \in [6.27, 6.45]$

This is the solution.

D. $f^{-1}(7) \in [3.54, 3.82]$

This solution corresponds to distractor 4.

E. $f^{-1}(7) \in [-3.62, -3.52]$

This solution corresponds to distractor 1.

General Comment: Natural log and exponential functions always have an inverse. Once you switch the x and y , use the conversion $e^y = x \leftrightarrow y = \ln(x)$.

4. Multiply the following functions, then choose the domain of the resulting function from the list below.

$$f(x) = 6x^4 + 4x^2 + 7x + 3 \text{ and } g(x) = \sqrt{-6x - 27}$$

The solution is The domain is all Real numbers less than or equal to $x = -4.5$, which is option C.

A. The domain is all Real numbers except $x = a$, where $a \in [6.25, 9.25]$

B. The domain is all Real numbers greater than or equal to $x = a$, where $a \in [3.5, 10.5]$

C. The domain is all Real numbers less than or equal to $x = a$, where $a \in [-12.5, -1.5]$

D. The domain is all Real numbers except $x = a$ and $x = b$, where $a \in [1.4, 5.4]$ and $b \in [1.25, 7.25]$

E. The domain is all Real numbers.

General Comment: The new domain is the intersection of the previous domains.

5. Determine whether the function below is 1-1.

$$f(x) = 18x^2 - 42x - 196$$

The solution is no, which is option A.

A. No, because there is a y -value that goes to 2 different x -values.

* This is the solution.

B. No, because the range of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the range is all Real numbers.

C. Yes, the function is 1-1.

Corresponds to believing the function passes the Horizontal Line test.

D. No, because the domain of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the domain is all Real numbers.

E. No, because there is an x -value that goes to 2 different y -values.

Corresponds to the Vertical Line test, which checks if an expression is a function.

General Comment: There are only two valid options: The function is 1-1 OR No because there is a y -value that goes to 2 different x -values.

6. Choose the interval below that f composed with g at $x = -1$ is in.

$$f(x) = 3x^3 + 2x^2 - 4x - 4 \text{ and } g(x) = 3x^3 + x^2 + 2x + 3$$

The solution is -1.0 , which is option B.

A. $(f \circ g)(-1) \in [1.9, 4.3]$

Distractor 2: Corresponds to being slightly off from the solution.

B. $(f \circ g)(-1) \in [-2.4, 0.1]$

* This is the correct solution

C. $(f \circ g)(-1) \in [-2.4, 0.1]$

Distractor 1: Corresponds to reversing the composition.

D. $(f \circ g)(-1) \in [5.6, 7.5]$

Distractor 3: Corresponds to being slightly off from the solution.

E. It is not possible to compose the two functions.

General Comment: f composed with g at x means $f(g(x))$. The order matters!

7. Find the inverse of the function below (if it exists). Then, evaluate the inverse at $x = 12$ and choose the interval that $f^{-1}(12)$ belongs to.

$$f(x) = \sqrt[3]{5x + 2}$$

The solution is 345.2 , which is option D.

A. $f^{-1}(12) \in [-345.36, -344.52]$

This solution corresponds to distractor 2.

B. $f^{-1}(12) \in [345.63, 346.11]$

Distractor 1: This corresponds to

C. $f^{-1}(12) \in [-346.21, -345.48]$

This solution corresponds to distractor 3.

D. $f^{-1}(12) \in [344.56, 345.27]$

* This is the correct solution.

E. The function is not invertible for all Real numbers.

This solution corresponds to distractor 4.

General Comment: Be sure you check that the function is 1-1 before trying to find the inverse!

8. Choose the interval below that f composed with g at $x = -1$ is in.

$$f(x) = x^3 - 1x^2 - 2x \text{ and } g(x) = -3x^3 + 3x^2 - x - 2$$

The solution is 90.0, which is option A.

- A. $(f \circ g)(-1) \in [89, 92]$

* This is the correct solution

- B. $(f \circ g)(-1) \in [-13, -8]$

Distractor 3: Corresponds to being slightly off from the solution.

- C. $(f \circ g)(-1) \in [81, 89]$

Distractor 2: Corresponds to being slightly off from the solution.

- D. $(f \circ g)(-1) \in [-2, 0]$

Distractor 1: Corresponds to reversing the composition.

- E. It is not possible to compose the two functions.

General Comment: f composed with g at x means $f(g(x))$. The order matters!

9. Subtract the following functions, then choose the domain of the resulting function from the list below.

$$f(x) = \frac{3}{4x - 23} \text{ and } g(x) = \frac{2}{4x - 29}$$

The solution is The domain is all Real numbers except $x = 5.75$ and $x = 7.25$, which is option D.

- A. The domain is all Real numbers except $x = a$, where $a \in [6.67, 12.67]$

- B. The domain is all Real numbers greater than or equal to $x = a$, where $a \in [-12, 1]$

- C. The domain is all Real numbers less than or equal to $x = a$, where $a \in [0.4, 5.4]$

- D. The domain is all Real numbers except $x = a$ and $x = b$, where $a \in [-2.25, 7.75]$ and $b \in [6.25, 10.25]$

- E. The domain is all Real numbers.

General Comment: The new domain is the intersection of the previous domains.

10. Determine whether the function below is 1-1.

$$f(x) = 18x^2 + 15x - 375$$

The solution is no, which is option C.

- A. No, because the domain of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the domain is all Real numbers.

- B. No, because there is an x -value that goes to 2 different y -values.

Corresponds to the Vertical Line test, which checks if an expression is a function.

- C. No, because there is a y -value that goes to 2 different x -values.

* This is the solution.

D. Yes, the function is 1-1.

Corresponds to believing the function passes the Horizontal Line test.

E. No, because the range of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the range is all Real numbers.

General Comment: There are only two valid options: The function is 1-1 OR No because there is a y -value that goes to 2 different x -values.

11. Find the inverse of the function below (if it exists). Then, evaluate the inverse at $x = -14$ and choose the interval that $f^{-1}(-14)$ belongs to.

$$f(x) = 3x^2 + 5$$

The solution is The function is not invertible for all Real numbers. , which is option E.

A. $f^{-1}(-14) \in [2.77, 3.81]$

Distractor 3: This corresponds to finding the (nonexistent) inverse and dividing by a negative.

B. $f^{-1}(-14) \in [2.33, 3.07]$

Distractor 1: This corresponds to trying to find the inverse even though the function is not 1-1.

C. $f^{-1}(-14) \in [5.4, 6.07]$

Distractor 4: This corresponds to both distractors 2 and 3.

D. $f^{-1}(-14) \in [0.99, 1.76]$

Distractor 2: This corresponds to finding the (nonexistent) inverse and not subtracting by the vertical shift.

E. The function is not invertible for all Real numbers.

* This is the correct option.

General Comment: Be sure you check that the function is 1-1 before trying to find the inverse!

12. Find the inverse of the function below. Then, evaluate the inverse at $x = 10$ and choose the interval that $f^{-1}(10)$ belongs to.

$$f(x) = e^{x-5} - 2$$

The solution is $f^{-1}(10) = 7.485$, which is option B.

A. $f^{-1}(10) \in [-2.64, -2.2]$

This solution corresponds to distractor 1.

B. $f^{-1}(10) \in [7.04, 7.51]$

This is the solution.

C. $f^{-1}(10) \in [0.21, 1.68]$

This solution corresponds to distractor 3.

D. $f^{-1}(10) \in [-0.58, -0.36]$

This solution corresponds to distractor 4.

E. $f^{-1}(10) \in [-0.38, 0.5]$

This solution corresponds to distractor 2.

General Comment: Natural log and exponential functions always have an inverse. Once you switch the x and y , use the conversion $e^y = x \leftrightarrow y = \ln(x)$.

13. Find the inverse of the function below. Then, evaluate the inverse at $x = 8$ and choose the interval that $f^{-1}(8)$ belongs to.

$$f(x) = e^{x-5} - 5$$

The solution is $f^{-1}(8) = 7.565$, which is option A.

A. $f^{-1}(8) \in [7.2, 8]$

This is the solution.

B. $f^{-1}(8) \in [-3.8, -1.4]$

This solution corresponds to distractor 1.

C. $f^{-1}(8) \in [-6.4, -2.6]$

This solution corresponds to distractor 2.

D. $f^{-1}(8) \in [-3.8, -1.4]$

This solution corresponds to distractor 3.

E. $f^{-1}(8) \in [-6.4, -2.6]$

This solution corresponds to distractor 4.

General Comment: Natural log and exponential functions always have an inverse. Once you switch the x and y , use the conversion $e^y = x \leftrightarrow y = \ln(x)$.

14. Add the following functions, then choose the domain of the resulting function from the list below.

$$f(x) = \frac{2}{5x-28} \text{ and } g(x) = 4x^2 + 6x + 2$$

The solution is The domain is all Real numbers except $x = 5.6$, which is option B.

A. The domain is all Real numbers greater than or equal to $x = a$, where $a \in [-0.4, 7.6]$

B. The domain is all Real numbers except $x = a$, where $a \in [-0.4, 6.6]$

C. The domain is all Real numbers less than or equal to $x = a$, where $a \in [0.5, 9.5]$

D. The domain is all Real numbers except $x = a$ and $x = b$, where $a \in [4.17, 12.17]$ and $b \in [3.25, 8.25]$

E. The domain is all Real numbers.

General Comment: The new domain is the intersection of the previous domains.

15. Determine whether the function below is 1-1.

$$f(x) = 18x^2 + 312x + 1014$$

The solution is no, which is option D.

A. No, because the range of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the range is all Real numbers.

B. No, because there is an x -value that goes to 2 different y -values.

Corresponds to the Vertical Line test, which checks if an expression is a function.

C. Yes, the function is 1-1.

Corresponds to believing the function passes the Horizontal Line test.

D. No, because there is a y -value that goes to 2 different x -values.

* This is the solution.

E. No, because the domain of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the domain is all Real numbers.

General Comment: There are only two valid options: The function is 1-1 OR No because there is a y -value that goes to 2 different x -values.

16. Choose the interval below that f composed with g at $x = 1$ is in.

$$f(x) = x^3 + 4x^2 - 3x - 3 \text{ and } g(x) = 3x^3 - 1x^2 - x - 1$$

The solution is -3.0 , which is option C.

A. $(f \circ g)(1) \in [4.2, 9.3]$

Distractor 2: Corresponds to being slightly off from the solution.

B. $(f \circ g)(1) \in [-7.2, -3.6]$

Distractor 1: Corresponds to reversing the composition.

C. $(f \circ g)(1) \in [-3.9, 0.9]$

* This is the correct solution

D. $(f \circ g)(1) \in [1.7, 4.4]$

Distractor 3: Corresponds to being slightly off from the solution.

E. It is not possible to compose the two functions.

General Comment: f composed with g at x means $f(g(x))$. The order matters!

17. Find the inverse of the function below (if it exists). Then, evaluate the inverse at $x = 12$ and choose the interval that $f^{-1}(12)$ belongs to.

$$f(x) = 5x^2 + 3$$

The solution is The function is not invertible for all Real numbers. , which is option E.

A. $f^{-1}(12) \in [1.53, 2.27]$

Distractor 2: This corresponds to finding the (nonexistent) inverse and not subtracting by the vertical shift.

B. $f^{-1}(12) \in [2.76, 3.9]$

Distractor 3: This corresponds to finding the (nonexistent) inverse and dividing by a negative.

C. $f^{-1}(12) \in [0.8, 1.48]$

Distractor 1: This corresponds to trying to find the inverse even though the function is not 1-1.

D. $f^{-1}(12) \in [4.01, 5.49]$

Distractor 4: This corresponds to both distractors 2 and 3.

E. The function is not invertible for all Real numbers.

* This is the correct option.

General Comment: Be sure you check that the function is 1-1 before trying to find the inverse!

18. Choose the interval below that f composed with g at $x = -1$ is in.

$$f(x) = -x^3 + x^2 - x \text{ and } g(x) = -x^3 + 4x^2 + 4x$$

The solution is -1.0 , which is option B.

A. $(f \circ g)(-1) \in [13, 17]$

Distractor 3: Corresponds to being slightly off from the solution.

B. $(f \circ g)(-1) \in [-2, 0]$

* This is the correct solution

C. $(f \circ g)(-1) \in [-12, -5]$

Distractor 2: Corresponds to being slightly off from the solution.

D. $(f \circ g)(-1) \in [21, 23]$

Distractor 1: Corresponds to reversing the composition.

E. It is not possible to compose the two functions.

General Comment: f composed with g at x means $f(g(x))$. The order matters!

19. Add the following functions, then choose the domain of the resulting function from the list below.

$$f(x) = \sqrt{-6x - 19} \text{ and } g(x) = 4x^2 + 6x + 4$$

The solution is The domain is all Real numbers less than or equal to $x = -3.17$., which is option A.

A. The domain is all Real numbers less than or equal to $x = a$, where $a \in [-3.17, -1.17]$

B. The domain is all Real numbers except $x = a$, where $a \in [4.17, 11.17]$

C. The domain is all Real numbers greater than or equal to $x = a$, where $a \in [0.6, 9.6]$

D. The domain is all Real numbers except $x = a$ and $x = b$, where $a \in [6.25, 11.25]$ and $b \in [3.2, 10.2]$

E. The domain is all Real numbers.

General Comment: The new domain is the intersection of the previous domains.

20. Determine whether the function below is 1-1.

$$f(x) = 9x^2 + 120x + 400$$

The solution is no, which is option E.

A. No, because the range of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the range is all Real numbers.

B. Yes, the function is 1-1.

Corresponds to believing the function passes the Horizontal Line test.

C. No, because the domain of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the domain is all Real numbers.

D. No, because there is an x -value that goes to 2 different y -values.

Corresponds to the Vertical Line test, which checks if an expression is a function.

E. No, because there is a y -value that goes to 2 different x -values.

* This is the solution.

General Comment: There are only two valid options: The function is 1-1 OR No because there is a y -value that goes to 2 different x -values.

21. Find the inverse of the function below (if it exists). Then, evaluate the inverse at $x = -15$ and choose the interval that $f^{-1}(-15)$ belongs to.

$$f(x) = 5x^2 + 4$$

The solution is The function is not invertible for all Real numbers. , which is option E.

A. $f^{-1}(-15) \in [2.55, 3.24]$

Distractor 3: This corresponds to finding the (nonexistent) inverse and dividing by a negative.

B. $f^{-1}(-15) \in [0.22, 1.57]$

Distractor 2: This corresponds to finding the (nonexistent) inverse and not subtracting by the vertical shift.

C. $f^{-1}(-15) \in [5.71, 6.76]$

Distractor 4: This corresponds to both distractors 2 and 3.

D. $f^{-1}(-15) \in [1.92, 2.48]$

Distractor 1: This corresponds to trying to find the inverse even though the function is not 1-1.

E. The function is not invertible for all Real numbers.

* This is the correct option.

General Comment: Be sure you check that the function is 1-1 before trying to find the inverse!

22. Find the inverse of the function below. Then, evaluate the inverse at $x = 9$ and choose the interval that $f^{-1}(9)$ belongs to.

$$f(x) = e^{x-5} - 2$$

The solution is $f^{-1}(9) = 7.398$, which is option B.

A. $f^{-1}(9) \in [-0.52, 0.09]$

This solution corresponds to distractor 2.

B. $f^{-1}(9) \in [6.77, 7.99]$

This is the solution.

C. $f^{-1}(9) \in [-0.67, -0.3]$

This solution corresponds to distractor 4.

D. $f^{-1}(9) \in [-2.85, -2.48]$

This solution corresponds to distractor 1.

E. $f^{-1}(9) \in [0.5, 1.03]$

This solution corresponds to distractor 3.

General Comment: Natural log and exponential functions always have an inverse. Once you switch the x and y , use the conversion $e^y = x \leftrightarrow y = \ln(x)$.

23. Find the inverse of the function below. Then, evaluate the inverse at $x = 8$ and choose the interval that $f^{-1}(8)$ belongs to.

$$f(x) = e^{x-2} - 3$$

The solution is $f^{-1}(8) = 4.398$, which is option A.

A. $f^{-1}(8) \in [3.79, 5.33]$

This is the solution.

B. $f^{-1}(8) \in [0.3, 0.72]$

This solution corresponds to distractor 1.

C. $f^{-1}(8) \in [-1.81, -1.38]$

This solution corresponds to distractor 2.

D. $f^{-1}(8) \in [-0.85, -0.59]$

This solution corresponds to distractor 3.

E. $f^{-1}(8) \in [-1.27, -1.04]$

This solution corresponds to distractor 4.

General Comment: Natural log and exponential functions always have an inverse. Once you switch the x and y , use the conversion $e^y = x \leftrightarrow y = \ln(x)$.

24. Multiply the following functions, then choose the domain of the resulting function from the list below.

$$f(x) = \frac{4}{6x + 29} \text{ and } g(x) = \frac{4}{4x - 17}$$

The solution is The domain is all Real numbers except $x = -4.83$ and $x = 4.25$, which is option D.

A. The domain is all Real numbers less than or equal to $x = a$, where $a \in [-8.33, 4.67]$

B. The domain is all Real numbers greater than or equal to $x = a$, where $a \in [-4.25, -2.25]$

C. The domain is all Real numbers except $x = a$, where $a \in [-9.17, -1.17]$

D. The domain is all Real numbers except $x = a$ and $x = b$, where $a \in [-8.83, -2.83]$ and $b \in [4.25, 8.25]$

E. The domain is all Real numbers.

General Comment: The new domain is the intersection of the previous domains.

25. Determine whether the function below is 1-1.

$$f(x) = -36x^2 - 342x - 756$$

The solution is no, which is option B.

- A. No, because the domain of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the domain is all Real numbers.

- B. No, because there is a y -value that goes to 2 different x -values.

* This is the solution.

- C. Yes, the function is 1-1.

Corresponds to believing the function passes the Horizontal Line test.

- D. No, because there is an x -value that goes to 2 different y -values.

Corresponds to the Vertical Line test, which checks if an expression is a function.

- E. No, because the range of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the range is all Real numbers.

General Comment: There are only two valid options: The function is 1-1 OR No because there is a y -value that goes to 2 different x -values.

26. Choose the interval below that f composed with g at $x = -1$ is in.

$$f(x) = -x^3 + 2x^2 + 2x - 2 \text{ and } g(x) = -4x^3 - 2x^2 + x$$

The solution is 1.0, which is option A.

- A. $(f \circ g)(-1) \in [-3, 5]$

* This is the correct solution

- B. $(f \circ g)(-1) \in [-3, 5]$

Distractor 1: Corresponds to reversing the composition.

- C. $(f \circ g)(-1) \in [-6, -1]$

Distractor 3: Corresponds to being slightly off from the solution.

- D. $(f \circ g)(-1) \in [-8, -5]$

Distractor 2: Corresponds to being slightly off from the solution.

- E. It is not possible to compose the two functions.

General Comment: f composed with g at x means $f(g(x))$. The order matters!

27. Find the inverse of the function below (if it exists). Then, evaluate the inverse at $x = 14$ and choose the interval that $f^{-1}(14)$ belongs to.

$$f(x) = 5x^2 + 3$$

The solution is The function is not invertible for all Real numbers. , which is option E.

- A. $f^{-1}(14) \in [5.96, 6.85]$

Distractor 4: This corresponds to both distractors 2 and 3.

- B. $f^{-1}(14) \in [3.46, 3.64]$

Distractor 3: This corresponds to finding the (nonexistent) inverse and dividing by a negative.

C. $f^{-1}(14) \in [1.66, 2.16]$

Distractor 2: This corresponds to finding the (nonexistent) inverse and not subtracting by the vertical shift.

D. $f^{-1}(14) \in [1.43, 1.51]$

Distractor 1: This corresponds to trying to find the inverse even though the function is not 1-1.

E. The function is not invertible for all Real numbers.

* This is the correct option.

General Comment: Be sure you check that the function is 1-1 before trying to find the inverse!

28. Choose the interval below that f composed with g at $x = -1$ is in.

$$f(x) = 4x^3 + x^2 - x - 1 \text{ and } g(x) = -x^3 - 1x^2 + x$$

The solution is -3.0 , which is option B.

A. $(f \circ g)(-1) \in [21, 24]$

Distractor 3: Corresponds to being slightly off from the solution.

B. $(f \circ g)(-1) \in [-9, 1]$

* This is the correct solution

C. $(f \circ g)(-1) \in [11, 16]$

Distractor 1: Corresponds to reversing the composition.

D. $(f \circ g)(-1) \in [3, 7]$

Distractor 2: Corresponds to being slightly off from the solution.

E. It is not possible to compose the two functions.

General Comment: f composed with g at x means $f(g(x))$. The order matters!

29. Subtract the following functions, then choose the domain of the resulting function from the list below.

$$f(x) = \sqrt{-6x - 23} \text{ and } g(x) = 7x^2 + 4x + 8$$

The solution is The domain is all Real numbers less than or equal to $x = -3.83$., which is option C.

A. The domain is all Real numbers greater than or equal to $x = a$, where $a \in [-10, -5]$

B. The domain is all Real numbers except $x = a$, where $a \in [-6.67, -3.67]$

C. The domain is all Real numbers less than or equal to $x = a$, where $a \in [-8.83, 4.17]$

D. The domain is all Real numbers except $x = a$ and $x = b$, where $a \in [-0.75, 9.25]$ and $b \in [4.25, 6.25]$

E. The domain is all Real numbers.

General Comment: The new domain is the intersection of the previous domains.

30. Determine whether the function below is 1-1.

$$f(x) = -12x^2 - 57x - 63$$

The solution is no, which is option C.

A. Yes, the function is 1-1.

Corresponds to believing the function passes the Horizontal Line test.

B. No, because there is an x -value that goes to 2 different y -values.

Corresponds to the Vertical Line test, which checks if an expression is a function.

C. No, because there is a y -value that goes to 2 different x -values.

* This is the solution.

D. No, because the range of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the range is all Real numbers.

E. No, because the domain of the function is not $(-\infty, \infty)$.

Corresponds to believing 1-1 means the domain is all Real numbers.

General Comment: There are only two valid options: The function is 1-1 OR No because there is a y -value that goes to 2 different x -values.
